APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/598,813	09/12/2006	Adam S. Leitch	GB 040062	1626

24737   7590   03/04/2009
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EXAMINER
SHAMOULIAN, MITRA E

ART UNIT	PAPER NUMBER
4192	

MAIL DATE	DELIVERY MODE
03/04/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/598,813	LEITCH, ADAM S.
	Examiner	Art Unit	
	MITRA SHAMOULIAN	4192	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☐ Responsive to communication(s) filed on _____.

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-24</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) <u>1-24</u> is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on <u>12 September 2006</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All   b)☐ Some *   c)☐ None of:

      1.☒ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>5/14/2007</u>

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1.   Claims 1-24 are objected to because of the following informalities:

Claims 1-24 contains numerous letters/numbers within the parentheses, i.e.,

Claim 1, lines 2 with "(I-V)" and "(s)"; lines 3 with "(d)"... It is unclear whether

those letters and numbers within the parentheses are limitations or <u>NOT</u>

limitations in the claims. If these letters and numbers within the parentheses are

not limitations of the claims then all the letters and numbers between the

parentheses should be removed/deleted from the claims. Appropriate correction

is required.

2.   Claims 22-24 are objected because it seems the preamble of claim 22; i.e., A

network comprising ..., is written as independent claim. Therefore, the Examiner will

consider claim 22 as "Independent claim" of depend claims 23-24.

Applicant is required to clarify whether or <u>Not</u> claim 22 is "Independent" or "Dependent"

claim. If claim 22 is not "Independent" claim, Applicant is required to amend the

preamble "A network comprising" to be consistent with the preamble of Independent

claim 18.

Appropriate correction is required

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 22-24 are rejected under 35 U.S.C. 101 because the instant claims are neither positively tied to a particular machine that accomplishes the claimed method steps nor transform underlying subject matter, and therefore do not qualify as a statutory process.

The claim recites "A network" but as the network does not have a specific definition in the specification of having to include a piece of hardware, a reasonable interpretation of "network" is just a collection of elements, which could just be software elements and NOT include hardware. For example the body of the claim recites "a network comprising a plurality of nodes as claimed in claim 18" it is noted "comprising a plurality of nodes" reasonably interprets as a mental process of collecting a set of collectors. Absent evidence or a special definition in the specification that clearly define the "network" to be a machine implementation, the claim as a whole appears to be one type of claim that is considered nonstatutory. See page 10 of In Re Bilski 88 USPQ2d 1385. The instant claims are neither positively tied to a particular machine that accomplishes the claimed method steps nor transform underlying subject matter, and therefore do not qualify as a statutory process

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form

the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent
by another filed in the United States before the invention thereof by the applicant
for patent, or on an international application by another who has fulfilled the
requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before
the invention thereof by the applicant for patent.

1.   Claims 1, 14, 18 and 22 are rejected under 35 U.S.C. 102(e) as being anticipated

over Koprivica (Patent NO: US 7,136,929).

Claim 1, Koprivica discloses a method of transmitting a message comprising a

sequence of ordered data portions (I-V) (Col. 5 Lines 8-9; Fig. 4, VLP 300, Subpacket

301-306 of Koprivica) between a source node (s) (Fig. 1 el.10; Col. 3, line 30 of

Koprivica) and a destination node (d) (Col. 3, Line 32) in a network (Col. 3, Line 31), the

method comprising:

assigning a route from a plurality of different routes (A-E) (frequency channels

in a frequency hopping spread spectrum FHSS hop sequence, Fig. 4 el. Channel 310-

321, Col. 5, lines 13-15 of Koprivica) to each of the data portions (I-V) (Fig.4, assign

transmitted data to communication channel; Col. 5, Lines 5-25 of Koprivica), and

transmitting each of the data portions (I-V) (Fig.4, subpacket 301-306 of

Koprivica) at a specific time based on the assigned route and order (frequency channels

in a frequency hopping spread spectrum FHSS hop sequence, Fig. 4 el. Channel 310-321, Col. 5, lines 13-25 of Koprivica) such that the portions are received in the ordered sequence at the destination node (d) (Col. 5, Lines 19-25 of Koprivica).

Claim 14, Koprivica discloses the method according to claim 1 wherein the data portions are assigned routes in dependence on said order of the data portion in the ordered sequence (Fig.4, el.310-321 Col. 5, Lines 31-38 of Koprivica).

Claim 18, Koprivica discloses a device (1, 10) adapted to be used in a wireless network (Col. 3, Line 30 of Koprivica) comprising a plurality of nodes (Fig. 1, el.10-20-30; Col. 3, Line 31 of Koprivica) for transmitting a message comprising an ordered sequence of data portions (I-V) (Col. 5 Lines 8-9; Fig. 4, VLP 300, Subpacket 301-306 of Koprivica) through the network to a destination node (d) (Col. 3, Line 31 of Koprivica) comprising

transmission means (2, 11) for transmitting each of the data portions (I-V) along a different route (A-E) and at a different time based on said route and order (Fig. 4 channel 310-channel 321; Col. 5, lines 13-15 of Koprivica) such that the data portions (I-V) are received in the ordered sequence at the destination node (d) (Col. 5, Lines 19-25 of Koprivica).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2.   Claims 1-4, 6-9, 14-15, 18,20, 22-24 are rejected under 35 U.S.C. 103(a) as

being unpatentable over Kotzin (Patent NO: US 6,958,984) in view of Koprivica (Patent

NO: US 7,136,929).

Claim 1, Kotzin discloses a method of transmitting a message comprising

(Col.14, Lines 27-31 of Kotzin)

Kotzin does not disclose a sequence of ordered data portions (I-V) between a

source node (s) and a destination node (d) in a network, the method comprising:

assigning a route from a plurality of different routes (A-E) to each of the data

portions (I-V), and

transmitting each of the data portions (I-V) at a specific time based on the

assigned route and order such that the portions are received in the ordered sequence at

the destination node (d).

Koprivica discloses a sequence of ordered data portions (I-V) (Col. 5 Lines 8-9;

Fig. 4, VLP 300, Subpacket 301-306 of Koprivica) between a source node (s) (Fig. 1

el.10; Col. 3, line 30 of Koprivica) and a destination node (d) (Col. 3, Line 32) in a

network (Col. 3, Line 31), the method comprising:

assigning a route from a plurality of different routes (A-E) (frequency channels

in a frequency hopping spread spectrum FHSS hop sequence, Fig. 4 el. Channel 310-

321, Col. 5, lines 13-15 of Koprivica) to each of the data portions (I-V) (Fig.4, assign

transmitted data to communication channel; Col. 5, Lines 5-25 of Koprivica), and

transmitting each of the data portions (I-V) (Fig.4, subpacket 301-306 of

Koprivica) at a specific time based on the assigned route and order (frequency channels

in a frequency hopping spread spectrum FHSS hop sequence, Fig. 4 el. Channel 310-

321, Col. 5, lines 13-25 of Koprivica) such that the portions are received in the ordered

sequence at the destination node (d) (Col. 5, Lines 19-25 of Koprivica).

Therefore, it would have been obvious to one of skill in the art at the time of the

invention was made, to modify Kotzin's network protocol with the teaching of

transmitting long message that is divided up into a plurality of sub packets of

predetermined size, as taught by Koprivica. The motivation would be improving the

transmission scheme over a noisy frequency-hopped communications channel (Col. 1,

lines 9-12 of Koprivica).

Claim 2, Kotzin in view of Koprivica discloses the method of claim , Kotzin further

discloses comprising the source node (s) (Fig. 1, el. 104 second wireless of Kotzin)

not being within the transmission range of the destination (d) (Fig. 1, el. 106D wireless

unit 4 of Kotzin) node and each route (A-E) comprising at least one node (a-c, e-g) for

forwarding the data portion(Fig. 1, el. 106A first wireless of Kotzin   ).

      Claim 3, Kotzin in view of Koprivica discloses the method of claim 2, Kotzin

further discloses wherein said data portion comprises route data (29) specifying the

addresses of the at least one node along the route (a-c, e-g) (forward information base

on receive information Col.13, Lines 16-18 of Kotzin).

      Claim 4, Kotzin in view of Koprivica discloses The method of claim 3, Kotzin

further discloses each of the at least one node (a-c, e-g) along the route receiving the

data portion (I-V), checking said route data (29) associated with the data portion and

forwarding the portion to the next node indicated by said route data (share wireless

resource, Col. 3, Line 49; Fig. 8, el.810; Col.13, Lines 26-33 of Kotzin).

      Claim 6, Kotzin in view of Koprivica discloses the method of claim I, Kotzin

further discloses wherein each route (A-E) is selected with consideration to the

information on the distances between nodes in the network (Col. 14 Lines 55-60; Fig. 9,

el. 900- 924 of Kotzin).

Claim 7, Kotzin in view of Koprivica discloses the method of claim I, Kotzin further discloses wherein the network has a coordinator node (1) and the coordinator stores the information on the distances between nodes in the network in the storage (6) of the coordinator node (Fig. 1, el.106A-106D; Col.11, Lines 45-48 of Kotzin).

Claim 8, Kotzin in view of Koprivica discloses the method of claim 7, Kotzin further discloses wherein said information stored in the network coordinator is changed in response to a change in position of a network node (add or remove one node the information change, Fig . 9, el. 900-924; Col. 14 Lines 55-60 of Kotzin).

Claim 9, Kotzin in view of Koprivica discloses the method of claim 7, Kotzin further discloses wherein the source node (s) is not the network coordinator, the source node (s) requests route data to a destination node (d) from the network coordinator (1) and the coordinator sends route data to the source node (Fig. 9, el. 900-924; Col. 14 Lines 55-60 of Kotzin).

Claim14, Kotzin in view of Koprivica discloses the method according to claim 1, Koprivica further discloses wherein the data portions are assigned routes in dependence on said order of the data portion in the ordered sequence (Fig.4, el.310-321 Col. 5, Lines 31-38 of Koprivica).

Claim15, Kotzin in view of Koprivica discloses the method according to claim 14,

Kotzin further discloses wherein a data portion from the beginning of the ordered

sequence is assigned a longer route than a data portion from the end of the ordered

sequence (Col. 10, Lines 55-65 of Kotzin).

Claim18, Kotzin discloses a device (1, 10) adapted to be used in a wireless

network (Fig. 1, el.104, 106A-106D , 102; Col. 8, Lines 3-5 of Kotzin) comprising a

plurality of nodes (Fig. 1, el.104, 106A-106D , 102; Col. 8, Lines 3-5 of Kotzin)

Kotzin does not disclose for transmitting a message comprising an ordered

sequence of data portions (I-V) through the network to a destination node (d)

comprising

transmission means (2, 11) for transmitting each of the data portions (I-V) along

a different route (A-E) and at a different time based on said route and order such that

the data portions (I- V) are received in the ordered sequence at the destination node (d).

Koprivica discloses for transmitting a message comprising an ordered sequence

of data portions (I-V) (Col. 5 Lines 8-9; Fig. 4, VLP 300, Subpacket 301-306 of

Koprivica) through the network to a destination node (d) (Col. 3, Line 31 of Koprivica)

comprising

transmission means (2, 11) for transmitting each of the data portions (I-V) along

a different route (A-E) and at a different time based on said route and order (Fig. 4

channel 310-channel 321; Col. 5, lines 13-15 of Koprivica) such that the data portions (I-

V) are received in the ordered sequence at the destination node (d) (Col. 5, Lines 19-25

of Koprivica).

Therefore, it would have been obvious to one of skill in the art at the time of the

invention was made, to modify Kotzin's network protocol; using the teaching of

transmitting message, as taught Koprivica. The motivation would be improving the

transmission scheme over a noisy frequency-hopped communications channel (Col. 1,

lines 9-12 of Koprivica).

Claim 20, Kotzin in view of Koprivica discloses the device (1, 10) according to

claim 18; Kotzin further discloses wherein the device is a ZigBee device or a Bluetooth

device (Col.4, lines 14 of Kotzin).

Claim 22, claim 22 is analyzed with respect to claim 18 in which Kotzin discloses

a network comprising a plurality of nodes (Fig. 1, el.104, 106A-106D , 102; Col. 8, Lines

3-5 ;Col. 4, Lines 2-13 of Kotzin).

Claim 23 Kotzin in view of Koprivica discloses a network as in claim 22, Kotzin

further discloses comprising a mesh network (el. 102 in Fig.1 is a mesh network; Col. 4,

Lines 2-13 of Kotzin)

Claim 24, Kotzin in view of Koprivica discloses a network as in claim 22, Kotzin

further discloses wherein the plurality of nodes includes a coordinating node for

supplying route information to other nodes when requested (Col. 8, Lines 1-10 of

Kotzin).

3.   Claims 5, 10-13 and 19 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Kotzin (Patent NO: US 6,958,984) in view of Koprivica (Patent NO:

US 7,136,929) and further in view of Belcea (Patent NO: US 6,807,165).

Claim 5, Kotzin in view of Koprivica discloses the method of claim 4,

Kotzin in view of Koprivica does not disclose wherein the data portion and the

route data are included in a Media Access Control data frame (25-32).

Belcea discloses wherein the data portion and the route data are included in a

Media Access Control data frame (25-32) (Fig. 1; el.12; Col. 9, Lines 52-61of Belcea).

Therefore, it would have been obvious to one of skill in the art at the time of the

invention was made, to modify Koprivica in view of Kotzin's system to use the protocol

,as taught by Belcea. The motivation would be improve through put and reliability of the

system (Col.4, Lines 10-30).

        Claim 10, Kotzin in view of Koprivica discloses the method of claim 9 further

Koprivica discloses wherein the route data comprises a plurality of available routes

between the source node and the destination node (Col. 13, Lines 10-13 of Koprivica)

and

        Kotzin in view of Koprivica does not disclose the time of flight of data along each

of the plurality of routes (39, 40, 41).

        Belcea discloses the time of flight of data along each of the plurality of routes (39,

40, 41) (Col.8, lines 46-50; Col.15, Lines 55- Col.16, Lines 7 of Belcea).

        Therefore, it would have been obvious to one of skill in the art at the time of the

invention was made, to modify Kotzin in view of Koprivica's system in using the method

and algorithm for ad-hoc network system that has the amount of energy data along

each of the plurality of path, as to by Belcea, the motivation would be leads to

improvements in the determination of RF radius for a given data rate (Col.5, Lines 7-11

of Belcea).

Claim 11, Kotzin in view of Koprivica and Belcea discloses the method of claim 10, Kotzin further discloses wherein the route data further comprises the information about which route is assigned to each data portion and when to transmit each of the data portions (42,43, 44) (Col. 10, Lines 54-62 of Kotzin)

Claim 12, Kotzin in view of Koprivica discloses the method of claim 1,

Kotzin in view of Koprivica does not disclose wherein the data portion assigned the longest route is transmitted first.

Belcea discloses wherein the data portion assigned the longest route is transmitted first (Col. 18 lines 48-55; Col. 16, Lines 1-15 of Belcea).

Therefore, it would have been obvious to one of skill in the art at the time of the invention was made, to modify Kotzin in view of Koprivica's network by assigning the path for fastest transmission of Belcea. The motivation would be increase data rate (Col 5, Lines 7-11 of Belcea)

Claim 13, Kotzin in view of Koprivica discloses the method of claim 1,

Kotzin in view of Koprivica does not disclose wherein the data portion assigned the shortest route is transmitted last.

Belcea discloses wherein the data portion assigned the shortest route is transmitted last (Col. 18 lines 50-55; Col. 10, Lines 10-25 of Belcea).

Therefore, it would have been obvious to one of skill in the art at the time of the

invention was made, to modify , Kotzin in view of Koprivica's network by assigning the

path for fastest transmission as taught by Belcea. The motivation would be increase

data rate (Col5, Lines 7-11 of Belcea)

Claim 19, Kotzin In view of Koprivica discloses the device (1, 10) as in claim 18,

Kotzin discloses further having storage means (6, 14) for storing data about the

distance between individual nodes in the network(Col. 7, lines 62-67; Col8, Lines 3-5 of

Kotzin),

Kotzin discloses further selecting means (4, 12) for selecting a route for each of

said data portions (Fig.8, el. 802, 804; Col.12, Lines 49-67 of Kotzin) wherein

Kotzin in view of Koprivica does not disclose calculation means (4, 12) for

calculating the time-of-flight along a plurality of routes between a source node and a

destination node in the network , and

the calculation means are further configured to calculate the time of transmission

of each data portions such that the portions arrive at the destination node in the ordered

sequence.

Belcea discloses calculation means (4, 12) for calculating the time-of-flight along

a plurality of routes(Fig. 5; Col. 15, Lines 54-67 of Belcea) between a source node and

a destination node in the network (Fig. 5; Col. 15, Lines 54-67 of Belcea), and

the calculation means are further configured to calculate the time of transmission

of each data portions such that the portions arrive at the destination node in the ordered

sequence (assign path base on large and smaller delay, Col.15, Lines 54-65 of Belcea)

Therefore, it would have been obvious to one of skill in the art at the time of the

invention was made, to modify Kotzin in view of Koprivica's network by assigning the

path for fastest transmitting path of Belcea. The motivation would be increase data rate

(Col. 5, Lines 7-11 of Belcea).

4.   Claims 16-17 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Kotzin (Patent NO: US 6,958,984) in view of Koprivica (Patent NO: US 7,136,929)

and further in view of Davies et al. (Patent NO: US 6,889,900).

Claim16, Kotzin in view of Koprivica discloses the method according to claim 1,

Kotzin in view of Koprivica does not disclose wherein the data is sent using the

IEEE 802.15.4 protocol (16, 17).

Davies discloses wherein the data is sent using the IEEE 802.15.4 protocol (16,

17) (Col.5, Lines 54-59 of Davies).

Therefore, it would have been obvious to one of skill in the art at the time of the

invention was made, to modify Kotzin in view of Koprivica's network in using the

network protocol "IEEE 802.15.4 as taught by Davies, the motivation would be use low

power protocol(Col.5, Lines 54-59 of Davies).

Claim17, Kotzin in view of Koprivica discloses the method according to claim 1,

Kotzin in view of Koprivica does not disclose wherein the data is sent using the

ZigBee standard.

Davies discloses wherein the data is sent using the ZigBee standard (Col.5,

Lines 54-59 of Davies).

Therefore, it would have been obvious to one of skill in the art at the time of the

invention was made, to modify Kotzin in view of Koprivica's network in using the ZigBee

standard as taught by Davies, the motivation would be use low power protocol(Col. 5,

Lines 54-59 of Davies).

Claim 21, Kotzin in view of Koprivica discloses the device (1, 10) according to

claim 18,

Kotzin in view of Koprivica does not disclose wherein the device operates

according to the IEEE 802.15.4 standard

Davies discloses wherein the data is sent using the ZigBee standard (Col.5,

Lines 54-59 of Davies).

Therefore, it would have been obvious to one of skill in the art at the time of the

invention was made, to modify Kotzin in view of Koprivica's network in using the ZigBee

standard as taught by Davies, the motivation would be use low power protocol(Col. 5,

Lines 54-59 of Davies).

Conclusion

Any inquiry concerning this communication or earlier communications from the
examiner should be directed to MITRA SHAMOULIAN whose telephone number is
(571)270-7912. The examiner can normally be reached on Monday to Thursday
7:30AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's
supervisor, Hai Train can be reached on (571)272-7305. The fax phone number for the
organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the
Patent Application Information Retrieval (PAIR) system. Status information for
published applications may be obtained from either Private PAIR or Public PAIR.
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For more information about the PAIR system, see http://pair-direct.uspto.gov. Should
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system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

M. S.
2/18/2009
 Examiner, Art Unit 4192
/Hai Tran/
Supervisory Patent Examiner, Art Unit 4192